

TAXONOMIC NOTES ON SOME BROMELIACEAE OF ECUADOR¹

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During the preparation of the keys and descriptions representing a portion of the author's PhD dissertation, "The Bromeliaceae of Ecuador, An Alpha-Numerical Taxonomic Study," it became necessary to make some additions and taxonomic changes. The following is an effort to place these changes and additions on record for the convenience of other taxonomists pending publication of "The Bromeliaceae of Ecuador" in its entirety.

PUYA GLOMERIFERA Mez and Sodiro, 1904 (Bull. Herb. Boiss. series 2, vol. 4) p. 630. Puya asplundii L. B. Smith, 1959 (Phytologia vol. 6, no. 8) pp. 439-440, pl. 2, figs. 14, 15.

NOTES: Examination of the respective TYPE specimens of Puya glomerifera and of Puya asplundii, Sodiro P-2 (B, TYPE; US, photo) and Asplund 2022 (US, TYPE), and examination of other specimens, supports a 1-taxa circumscription. Smith (1964, Phytol. 19(6): 463) separated these two in his revision by the relative sizes of the floral bracts and sepals. Study of the foregoing specimens indicates that the relative lengths of the sepals and floral bracts is variable within the same individual. Therefore, I am reducing P. asplundii to taxonomic synonymy with P. glomerifera, noting that the species is variable as to sepal size, as to margins of the primary bracts and noting also that in maturity the pedicels may become apparent.

PUYA SODIROANA Mez, 1904 (Bull. Herb. Boiss. series 2, vol. 4) pp. 630-631; Smith, 1964 (Phytologia vol. 10, no. 6) pp. 460, 473. Puya gummiifera Mez and Sodiro, 1904 (Bull. Herb. Boiss. series 2, vol. 4) p. 863; Smith, 1964 (Phytologia vol. 10, no. 6) pp. 463, 473.

¹ I wish to express my sincere admiration of Dr. Lyman B. Smith, the monographer of the plant family, and my deep gratitude to him for his encouragement, valuable advice and criticism during the past six years.

NOTES: For the following reasons I am reducing Puya gummifera to taxonomic synonymy with Puya sodiroana. These two entities previously had been distinguished by the length of the stipe and by the length of the sepals. Examination of the photograph of the TYPE specimen of P. sodiroana, Sodiro P-5 (B, TYPE; US, photo), indicates that the sepals rather than being to 40 mm long as stated in Mez (1935, Pflanzenreich vol. 4, p. 300) do not exceed 2.6 cm at most. The TYPE specimen of Puya gummifera, Sodiro P-4 (B, TYPE; US, photo), agrees well with sodiroana. The stipes of the TYPE specimens of both these are 12-18 mm long.

PITCAIRNIA DENDROIDEA André, 1888 (Énumération Bromél.) p. 4; Smith, 1957 (Contrib. Nat. Herb. vol. 33) p. 43. Pitcairnia commixta L. B. Smith, 1949 (Contrib. U.S. Nat. Herb. vol. 29) p. 303. Pitcairnia orgyalis André ex Mez, 1896 (DC Monogr. Phaner. vol. 9) p. 412.

NOTES: The taxa, Pitcairnia dendroidea André and Pitcairnia commixta L. B. Smith, which are based on the TYPE specimens, André 3361 and André 3747 respectively, are to me indistinguishable. Since Pitc. dendroidea was published in 1888, this is the correct name for the species. The TYPE is André 3361 from Colombia rather than André 3747, the TYPE of Pitcairnia commixta, nomen nova for the illegitimate name, Pitcairnia orgyalis André ex Mez.

PITCAIRNIA PULCHELLA Mez var. XANTHOPETALON Gilmartin, var. nov.

A var. pulchella foliorum laminis latioribus, bracteis florigeris angustioribus, deciduis differt.

LEAF-BLADES 7-12 cm broad; FLORAL BRACTS with a conspicuous dark base having a transverse line along which the bracts are deciduous. This latter character shows that the new variety may have some affinity with Pitcairnia ferreyrae L. B. Smith. However, the sepal size relative to the floral bracts and the majority of its floral and vegetative characteristics indicate that this variety, xanthopetalon, is most closely allied to Pitcairnia pulchella.

TYPE in the Gray Herbarium, Penland and Summers 230 (GH, TYPE), collected along Canelos trail, near Hacienda Victoria, Prov. Tungurahua, 1° 25' south, 78° 10' west, 1230 m, March-August, 1939.

PITCAIRNIA SCEPTRIGERA Mez, 1906 (Fedde Repert., vol. 3) p. 7; Mez, 1935 (Pflanzenreich IV, fam.

32) p. 276. Pitcairnia campii L. B. Smith, 1952 (Memoirs, N.Y. Bot. Gard. vol. 8, no. 1) p. 28, fig. 1, j-k.

Pitcairnia campii, TYPE Camp E3661 (US), was distinguished from Pitcairnia sceptrigera on the basis of the former possessing serrate petioles. Mez's description (Mez, 1935, Pflanzenreich IV, fam. 32, p. 276) of P. sceptrigera indicates that the petioles are entire. However, examination of the ISO-TYPE, Eggers 15061 (F), and the photograph of the TYPE specimen of P. sceptrigera, Eggers 15061 (B, TYPE; US, photo), shows that the petioles are serrate. It does not seem to be possible to distinguish the TYPE specimens of these two entities. Therefore, I am reducing P. campii L. B. Smith to taxonomic synonymy under the earlier P. sceptrigera.

TILLANDSIA STENOURA Harms, 1935 (Notizblatt, Gart. und Mus. Berlin, vol. 12, no. 115) p. 537. Tillandsia arguta L. B. Smith, 1959 (Phytologia vol. 6, no. 8) pp. 440-441, pl. 2, figs. 16, 17.

NOTES: Because Tillandsia arguta L. B. Smith, Foster 2619 (US, TYPE), shows no significant differences from the previously described T. stenoura Harms, I am reducing T. arguta to taxonomic synonymy with T. stenoura. Had there been access earlier to the TYPE specimen of T. stenoura Harms, Diels 558 (B, TYPE; US, photo), undoubtedly T. arguta would not have been described. Some specimens deposited in the Berlin herbarium which had been thought lost, later turned up.

TILLANDSIA STENOURA Harms var. GONZALEZII Gilmartin, var. nov.

A var. stenoura inflorescentia tripinnata, spicis subsessilibus differt.

SCAPE ca. 1.0 cm in diameter; INFLORESCENCE tripinnate at least toward base, purple; BRANCHES with 1 to 2 collar-like sterile bracts at base; SPIKES subsessile; FLORAL BRACTS 2.7-3.0 cm long.

TYPE in the Gray Herbarium, Espinosa E 1412 (GH, TYPE), collected in the "paramos" west of Saraguro, about 50 km north of the town of Saraguro, Prov. Loja, 3° 5' south, 29° 14' west, 2500 m, 10 March 1947.

TILLANDSIA STENOURA Harms var. MAUROI Gilmartin,
var. nov.

A var. stenoura, foliorum laminis angustioribus, inflorescentia gracili, bracteis florigeris longioribus, differt.

LEAVES somewhat triangular to lingulate, blade width 3.0-3.5 cm; INFLORESCENCE ca. 25 cm long and ca. 10 cm in diameter, bipinnate; SPIKES 5.0-10.0 cm long, erect; FLORAL BRACTS 3.0-3.5 cm long.

TYPE in the U.S. National Herbarium, AJG 1112 (US, TYPE), collected at km 40 Cuenca-Loja, epiphytic, moderately common, moist shrub-small trees, Prov. Azuay, 3° 7' south, 79° 4' west, 3000 m, 9 Aug. 1965.

TILLANDSIA BREVICAPSULA Gilmartin, spec. nov.

A T. denudata André, cui affinis, ramis ad 30 cm longis, capsulis brevioribus, differt.

PLANT probably at least 1 m tall; LEAVES ca. 46 cm long, blades 5.0-5.5 cm wide, lingulate, apex long-acute, punctulate, sheath 18-20 cm long by 9.0 cm wide, purple above; INFLORESCENCE probably ca. 50 cm long by ca. 30 cm in diameter, bipinnate, spikes laxly disposed, 3.0-4.0 cm between spikes, glabrous; PRIMARY BRACTS ca. 7.0-8.0 cm long, 2.0 cm wide, erect to spreading, apex attenuate; SCAPE 1.0-1.5 cm in diameter; SCAPE-BRACTS unknown; SPIKES to ca. 30 cm long by 2.0 cm wide at anthesis, ca. 3.5 cm wide at capsule maturity, spreading to recurved, with stipe ca. 10 cm long having 4 to 5 sterile bracts; FLORAL BRACTS 2.1-2.4 cm long by 1.5-1.6 cm wide, gently rounded dorsal surface, glabrous without, densely lepidote within, scarcely nerved, coriaceous, imbricate and erect at anthesis, spreading and not touching at capsule maturity, apex obtuse to cuspidate; SEPALS 2.0 cm long by 8 mm wide, ovate-elliptic, obtuse, posteriorly carinate, free, slightly nerved, glabrous without, lepidote within; PETALS at least 3.5 cm long; CAPSULE 2.2 cm long, not exceeding calyx, seeds dark brown, distance between flowers 7-8 mm.

TYPE in the U.S. National Herbarium, Firmin 652 (US, TYPE), collected in the Prov. of Pichincha, exact locality not known, probably ca. 2700 m, 3 Jan. 1929.

TILLANDSIA CLAVIGERA Mez, 1896 (DC. Monogr. Phaner. vol. 9) p. 783. Tillandsia deppeana Steudel var. clavigera (Mez) L. B. Smith, 1956 (Phytologia vol. 5) p. 395.

NOTES: The differences evident between T. clavigera Mez and T. fendleri Griseb. seem sufficient to set these two apart at the species level.

(Fendleri, according to Smith, 1965, Bromel. Soc. Bull. 15(1):4, is the correct epithet for south American specimens which had been placed in T. deppeana.) The floral bracts of T. clavigera do not exceed 3.5 cm in length, the sepals are not more than 3.0 cm long and the stipe is consistently longer than 1.0 cm and may be up to 15 cm long.

TILLANDSIA FENDLERI Griseb. var. REDUCTA (L. B. Smith) Gilmartin, comb. nov. Tillandsia deppeana var. reducta (L. B. Smith) L. B. Smith, 1956 (Phytologia vol. 5, no. 8) p. 395. Tillandsia rubra var. reducta L. B. Smith, 1951 (Fieldiana (Bot.) vol. 28) p. 151.

TILLANDSIA FENDLERI Griseb. var. NERVISEPALA Gilmartin, var. nov.

A var. fendleri sepalis nervatis, bracteis florigeris sepalisque brevioribus differt.

PLANT ca. 60 cm tall; LEAVES ca. 70 cm long, blades ca. 5.0 cm wide; INFLORESCENCE ca. 40 cm long by 30 cm in diameter; FLORAL BRACTS 2.6-2.7 cm long by 2.4 cm wide; SEPALS ca. 2.0 cm long by ca. 1.2 cm wide, obtuse, strongly nerved; CAPSULES 5.5-6.0 cm long, much exceeding calyx.

TYPE in the U.S. National Herbarium, Hitchcock 21443 (US, TYPE), collected between Loja and San Lucas, epiphytic, Prov. Loja, ca. 3° 44' south, 79° 16' west, 2100-2600 m, 6 Sept. 1923.

TILLANDSIA FOSTERI Gilmartin, spec. nov.

A Tillandsia wurdackii L. B. Smith, cui affinis, foliorum laminis latioribus, glabris, stipitibus ad 3.5 cm longis, bracteis vacuis ad 3 praeditis differt.

PLANT ca. 1.5 m tall by ca. 130 cm in diameter, rosette of spreading leaves; LEAVES 45-55 cm long, blades 6.0-7.5 cm wide, lingulate, purple-blotched, glabrous on both surfaces, apex acute, sheaths

17-20 cm long by 8-10 cm wide, purple in part, ovate, densely appressed-lepidote; SCAPE 1.3 cm in diameter, curved, much exceeded by leaves; SCAPE-BRACTS totally imbricate, foliaceous; INFLORESCENCE ca. 65 cm long by 8-10 cm wide, curved, lax, bipinnate, glabrous, having ca. 19 spikes; PRIMARY BRACTS 4.5-18.0 cm long by 3-4 cm wide, apex attenuate to caudate, spreading; SPIKES 9-10 cm long by 2.0-2.5 cm wide, some of the lower spikes with 6 to 8 apical small floral bracts having aborted flowers, spreading, distance between spikes 1.5-4.0 cm, stipe to 3.5 cm long, having 2 to 3 sterile bracts; FLORAL BRACTS 2.7-3.0 cm long by 2.1 cm wide, erect, imbricate, elliptic, glabrous, densely lepidote within, very obscurely nerved but still appearing smooth and lustrous, coriaceous, apex acute; SEPALS 2.1-2.5 cm long by 0.8 cm wide, elliptic, glabrous, densely lepidote within, acute, posteriorly carinate, posteriorly connate for 2-3 mm, obviously nerved; PETALS ca. 3.5 cm long, distance between flowers 6-7 mm; CAPSULES 3.0 cm long, not extending beyond the floral bracts.

TYPE in the U.S. National Herbarium, Foster 2625 (US, TYPE), collected between Oña and Saraguro, on ledges, Prov. Loja, ca. 2400 m, 4 Dec. 1948.

TILLANDSIA BUSERI Mez var. NUBICOLA Gilmartin, var. nov.

A var. buseri sepalis connatis latioribus differt.

INFLORESCENCE lax; SPIKES reflexed with ca. 7 to 10 flowers per spike; SEPALS 8 mm wide, usually posteriorly connate for 4-6 mm; PETALS ca. 3.5 cm long.

TYPE in the U.S. National Herbarium, Foster 2620 (US, TYPE), collected between Cuenca and Oña, cloud forest, epiphytic, Prov. Azuay, ca. 3000 m, 3 Dec. 1948.

TILLANDSIA ARCUANS L. B. Smith var. NAUNDORFFII Gilmartin, var. nov.

A var. arcuans partibus omnibus parvioribus, spicis angustioribus, sepalis chartaceis, differt.

LEAVES 25-35 cm long, blades 2.0-3.0 cm wide; SCAPE diameter to 1.0 cm; INFLORESCENCE ca. 7.0 cm in diameter; SPIKES to 9.0 cm long by 2.5 cm wide

at anthesis; FLORAL BRACTS 3.8-4.0 cm long by ca. 2.3 mm wide; SEPALS subcoriaceous; PETALS ca. 4.5 cm long; distance between flowers to 9 mm.

TYPE in the U.S. National Herbarium, Naundorff s. n. (US, TYPE), collected in quebrada near Quito, cultivated by Marnier-Lapostolle in France, Prov. Pichincha, 2800 m, 26 March 1963.

TILLANDSIA QUEROENSIS Gilmartin, spec. nov.

A T. orbicularis L. B. Smith atque T. sceptriformis Mez et Sodiro, cui afinis, caulibus elongatis, folorum laminis triangularis, spici filiformibus paucioribus differt.

PLANT 70 cm to 1 m tall including inflorescence, long-stemmed, growing in clumps of several individuals, terrestrial; LEAVES 30-45 cm long, blades 2.0-2.5 cm wide, narrowly triangular, densely appressed-lepidote, apex filiform, sheath ca. 10 cm long by 4.0-5.0 cm wide, dark brown; SCAPE 5-6 mm in diameter, curved, exceeding leaf-rosette; SCAPE-BRACTS 4-21 cm long by ca. 1.5 cm wide, erect, imbricate, red; INFLORESCENCE 10-24 cm long by 3.0-4.0 cm wide at anthesis, bipinnate, lax below, dense above, having 4 to 6 spikes, subglabrous; PRIMARY BRACTS 3.0-6.0 cm long by ca. 1.6 cm wide, erect, red, elliptic, apex acute to apiculate; SPIKES 5.5-7.0 cm long by ca. 1.5 cm wide at anthesis, erect, ca. 1.0-2.0 cm apart, having 5 to 9 flowers per spike, stipe minimal to 1.5 cm long with 1 to 2 sterile bracts; FLORAL BRACTS ca. 2.5 cm long by 1.2 cm wide, imbricate, erect, elliptic-ovate, red, ecarinate to slightly carinate, glabrous to moderately lepidote without, moderately lepidote within, nerved, apex broadly acute, coriaceous; SEPALS 1.7-2.2 cm long by ca. 6 mm wide, elliptic, erect, pink, carinate, connate for 1-5 mm, acute, strongly nerved, glabrous without, moderately lepidote within; PETALS 3.0-3.5 cm long, stamens included by 2-3 mm, distance between flowers 4-10 mm.

TYPE in the U.S. National Herbarium, AJG 1102 (US, TYPE), collected at km 18 Ambato-Cuenca near pueblo of Quero, terrestrial, common locally, steep, rocky slope, Prov. Tungurahua, 1° 23' south, 78° 36' west, ca. 2800 m, 8 Aug. 1965; 1101 AJG (US) same as AJG 1102, 8 Aug. 1965; Naundorff s. n. (US) valley of Azogues, cultivated by Marnier-Lapostolle in France, Prov.

Cañar, 2500 m, no date, probably 1966.

NOTES: The floral parts when dry bear some resemblance to T. incarnata H. B. K. However, the inflorescence is borne on a much thicker scape and is bipinnate, the floral bracts are broader, 1.0-1.3 cm wide, and the sepals are larger, 1.7-2.2 cm long and less connate, 3-5 mm, in T. queroensis than in T. incarnata. The colors of the live inflorescence are distinct, the floral bracts being red in T. queroensis and purple in T. incarnata. T. queroensis also has some resemblance to T. chartacea L. B. Smith. The primary bracts of T. queroensis, however, are much more conspicuous, being at least one-half as long as the few-flowered spikes; the spikes are much less complanate and the floral bracts are acute, not obtuse.

TILLANDSIA ACOSTA-SOLISII Gilmartin, spec. nov.

A T. cornuta Mez et Sodiro, cui affinis, bracteis florigeris longioribus erectis, sepalis nervatis differt.

PLANT 40-65 cm tall by ca. 25 cm in diameter, leaf-rosette elongate-erect, growing in clumps of several individuals; LEAVES 32-45 cm long, blades 1.0-2.0 cm wide, flat, papery when dry, narrowly triangular, apex attenuate to filiform, densely appressed-lepidote; sheath 3.0-7.0 cm long by 2.0-3.5 cm wide, concolorous with blade below, dark brown above; SCAPE 3-4 mm in diameter, erect; SCAPE-BRACTS 4.0-15.0 cm long by 1.0-1.2 cm wide, erect, sheaths clasping scape, caudate apices spreading, imbricate throughout; INFLORESCENCE 12-14 cm long by ca. 2.0 cm wide, simple, distichous, erect, linear-elliptic, glabrous, having 10 to 15 flowers, rhachis strongly geniculate; FLORAL BRACTS 2.5-3.0 cm long by 1.2-1.6 cm wide, erect in bud, erect to spreading after anthesis, ovate, glabrous without, pale-lepidote within, apex acute, subcarinate, slightly nerved; SEPALs 2.4-2.7 cm long by 6 mm wide, erect to spreading, acute, ovate with margins nearly straight, equally connate for 3-4 mm, posteriorly carinate, slightly nerved, glabrous without, lepidote within; PETALS 4.0-4.5 cm long, blades ca. 1.4 cm wide, erect, white; CAPSULE to 6.5 cm long, distance between flowers 0.1-1.2 cm.

TYPE in the U.S. National Herbarium, Teuscher 2275-56 (US, TYPE), collected east of Cuenca,

Dec. 1958; Acosta Solis 6139 (F), Charquiyacu, Prov. Bolivar, ca. 600 m, 4 Oct. 1943; AJG 1178 (US), Soroche, between El Tambo and Guayaquil, ca. 90 km from Guayaquil, epiphytic, 7-8 m from ground, cloud forest, Prov. Cañar, ca. 900 m, 14 Aug. 1965.

NOTES: T. acosta-solisii Gilmartin differs from T. cornuta Mez and Sodiro to which it bears the most resemblance, in the following ways. T. acosta-solisii has its 2.5-3.0 cm long floral bracts erect to spreading, its inflorescence 12-14 cm long and its sepals 2.4-2.7 cm long. T. cornuta has its 1.8 cm long floral bracts spreading at ca. 45° angle with the rhachis, its inflorescence is 10-12 cm long and its sepals are 1.8-2.1 cm long.

TILLANDSIA STRAMINEA H. B. K., 1816 (Nova Genera et Species, vol. 1) p. 292; Mez, 1935 (Pflanzenreich IV. Fam. 32) pp. 531-532.

NOTES: Although Mez (1935) placed Tillandsia straminea H. B. K. in the subgenus, Allardtia; its short style, and conspicuous petal blades would preclude its membership in Allardtia and justify its inclusion in the subgenus, Phytarrhiza. Smith (1954, Contrb. U.S. Herb. 29(11): 535) has mentioned the Phytarrhiza-like characteristics of T. straminea in notes on T. cacticola L. B. Smith. I am including T. straminea within the subgenus, Phytarrhiza.

TILLANDSIA NUBIS Gilmartin, spec. nov.

A T. dyeriana André, cui affinis, partibus omnibus minoribus, spicis angustioribus bracteis florigeris sepalis non superatis differt.

PLANT to 45 cm tall; LEAVES at least to 24 cm long, blades ca. 3.0-4.5 cm wide, linguulate, apex acute to apiculate, sheath ca. 9.0 cm long by 4.5-5.5 cm wide, pale brown, blade and sheath often with some purple when living; SCAPE 35-48 cm long with inflorescence, 3-4 mm in diameter; SCAPE-BRACTS 5.0-7.0 cm long, strict, imbricate below, scarcely so above; INFLORESCENCE ca. 24 cm long by ca. 13 cm in diameter, mostly bipinnate, may be partly tripinnate, lax, pyramidal, glabrous; PRIMARY BRACTS 2.5-4.0 cm long by 0.9-1.0 cm wide; SPIKES 6.0-9.0 cm long by ca. 3.0-4.0 cm wide, ascending, with stipe 1.4-3.0 cm long, no sterile bracts, having 8 to 14 flowers, spike rhachis nearly straight, distance between spikes 2.0-4.0 cm; FLORAL BRACTS 1.4-2.1 cm long by

8 mm wide, spreading at 75°-90° angle with rhachis at anthesis, carinate nerved, apex acute, apparently glabrous without and within, papery, not imbricate; SEPALs 1.5-1.8 cm long by 5-7 mm wide, about equaling floral bracts, broadly elliptic, coriaceous, glabrous without and within, acute to attenuate, not nerved, ecarinate; PETALS to 4.5 cm long, blades ca. 1.2 cm wide, violet; OVARY 2-3 mm long by 1.2 mm wide, style 1.0-1.5 mm long shorter than stamens, distance between flowers 4-6 mm, probable flowering time March-June.

TYPE in the U.S. National Herbarium, Naundorff s. n. (US, TYPE), Tandapi, "palma de pais," cultivated by Marnier Lapostolle no. 55, Prov. Pichincha, ca. 1500 m, 22 March 1966; AJG 1186 (US) cloud forest, road between Guayaquil and El Tambo, Prov. Cañar, ca. 920 m, 14 Aug. 1965.

NOTES: The resemblance of T. nubis Gilmartin to T. dyeriana André is strong and especially so if one does not take into consideration the dimensions of the floral parts. The spikes, for example, of T. dyeriana are at least 5.5 cm wide at anthesis and the spikes of T. nubis are not more than 3.0 cm wide at anthesis. An additional feature which distinguishes these two is the relative lengths of the sepals and floral bracts. The floral bracts of T. dyeriana conspicuously over-reach the sepals; the floral bracts of T. nubis are 1.4-2.1 cm long and are equal to or exceeded by the broadly elliptic sepals which are 1.5-1.8 cm long.

TILLANDSIA SINUOSA L. B. Smith var. QUIROZII Gilmartin, var. nov.

A var. sinuosa inflorescentia breviori spicis decurvatis differt.

Plant habit and most dimensions and shapes largely like T. sinuosa var. sinuosa. However, the plant is shorter, the inflorescence is to 7.0 cm long and the spikes rather than being ascending are recurved. The leaves are longer, to 30 cm long, and narrower. Floral bracts are 6-7 mm long; sepals are symmetric and broadly obovate.

TYPE in the U.S. National Herbarium, AJG 1176 (US, TYPE), collected near Monte Negro, between El Tambo and Guayaquil, cloud forest, Prov. Cañar, 2° 28' south, 79° 12' west, ca. 950 m, 14 Aug. 1965.

TILLANDSIA INSULARIS Mez var. LATILAMINA Gilmartin, var. nov.

A var. insularis foliorum vaginis violaceis, laminis latioribus, apicis adscendentibus, bracteis florigeris lepidotis differt.

Ample collections of Tillandsia insularis Mez have made it possible to distinguish two varieties. Variety latilamina has wider leaves, usually 4.3-7.0 cm wide at the blade, some purple is usually evident either on the sheath or blade or both, the outer surface of the floral bracts is lepidote, the spikes are usually ascending and, unlike the typical variety, the floral bracts may be slightly longer than the sepals.

TYPE in the U.S. National Herbarium, AJG 882 (US, TYPE) collected west of "Table Mountain," a flat-top mountain visible from Academy Bay on Isla Santa Cruz (Indefatigible) and east of a large crater, epiphytic on Scalesia, very common locally, 0° 40' south, 90° 16' west, ca. 400 m, 3 Feb. 1967; AJG 877 (US) El Occidente, west side of Isla Santa Cruz, ca. 6 km northwest of Bella Vista, ca. 0° 42' south, 90° 24' west, ca. 220 m, 28 Jan. 1964; AJG 878 (US); AJG 880 (US); and AJG 881 (US) same site and date as AJG 877; AJG 918 (US) M. Gilmartin, epiphytic, near Progreso, Isla San Cristóbal (Chatham), ca. 250 m, March 1964; Lund 1 (US) and Lund 2 (US) near Progreso, southwest side of Cerro José Herrera, Isla San Cristóbal, ca. 200 m, 26 Jan. 1965; Stewart 1117 (GH) above Wreck Bay, Isla San Cristóbal, ca. 170 m, 27 Jan. 1906; Stewart 1116 (GH) "common on bushes, small trees, among rocks in vegetable mold," Isla Floreana (Charles) ca. 400 m, 9 Oct. 1906; AJG 885 (US) ca. two-hour walk from Black Beach inland, Garcia-Wittmer farm, epiphytic on Inga "Guaba," Isla Floreana, ca. 240 m, 6 Feb. 1964; AJG 886 (US) epiphytic on Psidium "guayaba," common locally, Isla Floreana, ca. 300 m, 6 Feb. 1964; AJG 917 (US) epiphytic on Psidium "guayaba," common, near Garcia-Wittmer farm, Isla Floreana, ca. 240 m, 6 Feb. 1964; Itow 223 (DS) Scalesia forest, Isla Floreana, ca. 300 m, 17 Feb. 1964.

VRIESEA ESPINOSAE (L. B. Smith) Gilmartin, comb. nov.

Tillandsia espinosae L. B. Smith, 1951 (Contrib. U.S. Nat. Herb. vol. 29, no. 19) pp. 498-499, fig. 65, d, e.

NOTES: The petals of AJG 887 (US) clearly show basal scales indicating that the species belong in the genus, Vriesea. Although the description of the TYPE specimen, Espinosa E-1205 (GH, TYPE; US, photo and fragment) does not mention the stolons it is probable that the stolons simply were not collected. The other collections, Fagerlind and Wibom 617 (US), Rauh, Hirsch E 5, and AJG 887, all show the stolons between plants. The species seem to be restricted to xerophytic communities west of the Andes.

VRIESEA BARCLAYANA (Baker) L. B. Smith var. MINOR
Gilmartin, var. nov.

Tillandsia lateritia André, 1888 (Énumération Bromél.) p. 6; André, 1889 (Bromel. Andreanae) pp. 76-77, pl. 21; Mez, 1935 (Pflanzenreich IV. Fam. 32) p. 553, pro parte.

A var. barclayana partibus omnibus minoribus, ad 45 cm longis, inflorescentia breviori, bracteis florigeris 1.8-2.6 cm longis differt.

PLANT like the typical variety but smaller, 30-45 cm tall; INFLORESCENCE 5.0-12.0 cm long by 3.0-3.5 cm wide and having 9 to 18 flowers; FLORAL BRACTS 1.8-2.2 cm long.

TYPE in the Kew Herbarium, André 4057 (K, TYPE, type of T. lateritia) Sabanetas, at foot of Chimborazo, Prov. Bolivar, July 1876; Sodiño 171/26 (B; US, photo) near Sabanetas, Prov. Bolivar, July 1872; Camp E-3899 (US) between Naranjapata and Huigra, saxicolous, Rio Chanchan canyon, Prov. Chimborazo, 600-900 m, 19 June 1945; Hitchcock 21247 (US) epiphytic, on dry hill, Portovelo near Zaruma, Prov. El Oro, 600-1000 m, 30 Aug. - 1 Sept. 1923; AJG 863 (US) km 79 Guayaquil-El Tambo, Prov. Cañar, 2° 16' south, 79° 14' west, ca. km 79 Guayaquil-El Tambo, 21 Sept. 1963.

NOTES: The new variety minor Gilmartin of V. barclayana (Baker) L. B. Smith is probably related to geographical location, the smaller one being found somewhat inland. Possibly the two varieties may come together in Prov. El Oro in southwest Ecuador.

GUZMANIA SANGUINEA (André) Mez var. BREVIPEDICELLATA
Gilmartin, var. nov.

A var. sanguinea folis angustioribus, bracteis florigeris brevioribus acutis subcucullatis pedicellis brevioribus differt.

LEAVES mostly not exceeding 20 cm in length, blades to 2.5 cm wide; FLORAL BRACTS to 2.2 cm long, acute, not at all abruptly acuminate; SEPALs to 1.7 cm long; FLOWERS visible from side of plant at anthesis; PETALS with lobes yellow or yellow with green apices.

TYPE in the U.S. National Herbarium, AJG 888 (US, TYPE) collected near km 97 Duran-El Tambo, wet forest, Prov. Cañar, ca. 2° 27' north, 79° 3' west, ca. 2100 m, 22 March 1964; Wagner s. n. (US) Prov. Chimborazo, ca. 1500 m, 1957(?); Teuscher s. n. (US) near town of Ducur, Cuenca-Guayaquil road, Prov. Cañar, ca. 1500 m, 1956(?); AJG 939 (US) epiphytic on "matapalo," cloud forest, 1 km east of Bucay, Prov. Chimborazo, ca. 300 m, 4 June 1962.

NOTES: The most outstanding distinction (but difficult to discern in dry material) between Guzmania sanguinea var. sanguinea and var. brevipedicellata lies in the shape of the floral bracts. The typical variety has its apex obtuse-apiculate, the tip decidedly drawn out, and there is no sign of the bract being cucullate. Variety brevipedicellata has its floral bracts with an acute apex, and tending to be cucullate.

GUZMANIA XANTHOBRACTEA Gilmartin, spec. nov.

A Guzmania amplexans L. B. Smith, cui affinis, scapo gracili, bracteis florigeris obtusis char-
taceis, sepalis brevioribus acutis differt.

PLANT ca. 1 m tall, with well-developed "woody" base having many long fibrous "holdfasts"; LEAVES 80-110 cm long, blades 3.5-4.0 cm wide, linear-lingulate, apex attenuate, very inconspicuously lepidote, sheath ca. 9 cm long by 6.0 cm wide, dark brown; SCAPE not exceeding leaves, ca. 4 mm in diameter, curving; SCAPE-BRACTS 7.0-30.0 cm long by ca. 2.3 cm wide, erect, imbricate, apex attenuate to caudate; INFLORESCENCE 40-50 cm long by 15-20 cm in diameter, curving, yellow, subglabrous, bipinnate, lax; PRIMARY BRACTS 4.0-8.0 cm long, spreading to ascending, apex attenuate, red; SPIKES 10-14 cm long by 4.0-4.5 cm in diameter, obovate, ca. 5 to 10 spikes per inflorescence, ca. 4.0 cm apart, ascending, flowers per spike 9 to 15, stipe 0.8-2.5 cm long with 1 to 2 sterile bracts; FLORAL BRACTS 3.5-4.0 cm long by ca. 1.5 cm wide, obovate, apiculate, imbricate, strongly nerved, papery, punctulate without, glabrous within, yellow when living; SEPALs 2.0-2.2 cm long by 5 mm wide, acute, obovate, coriaceous, carinate, glabrous

without and within, connate equally for 5-7 mm; PETALS ca. 5.0 cm long, lobes green; OVARY 7-8 mm long by 2 mm in diameter, distance between flowers 4-5 mm.

TYPE in the U.S. National Herbarium, AJG 871 (US, TYPE), terrestrial, road-cut, ca. km 100 Guayaquil-El Tambo, Prov. Cañar, ca. 2° 30' south, 79° 7' west, ca. 1850 m, 16 Nov. 1963; Drew E-540 (US) epiphytic (?), above Garcia Moreno, above Rio Intag, near confluence of Rio Intag and Rio Quinde, Prov. Imbabura, 0° 16' north, 78° 38' west, 1530 m, 8 Sept. 1944.

GUZMANIA ECUADORENSIS Gilmartin, spec. nov.

A G. amplexenti L. B. Smith, cui affinis, inflorescentia tripinnata, sepalis longioribus bracteis florigeris excedentibus differt.

PLANT ca. 1 m tall; LEAVES ca. 1 m long, blades 6.0-7.0 cm wide, lingulate, apex pungent; SCAPE erect, 1.6 cm in diameter; SCAPE-BRACTS 8.0-15.0 cm long at least, imbricate, apex attenuate; INFLORESCENCE ca. 35 cm in diameter, tripinnate, lax, branches ca. 4.0 cm apart; PRIMARY BRACTS 6.0-9.0 cm long, apex attenuate, red; BRANCHES ca. 20 cm long by ca. 12 cm in diameter, having 1 to 3 secondary branches; SECONDARY BRANCHES 8.0-10.0 cm long by 4.0-5.0 cm wide, spreading to nodding, flowers per branch 8 to 12, stipe ca. 1.5 cm long; FLORAL BRACTS 2.4-2.6 cm long by 1.1 cm wide, ovate-elliptic, spreading to erect, not imbricate, strongly nerved, glabrous without, lepidote within, papery, apex obtuse; PEDICELS ca. 6 mm long; SEPALS 3.5-4.0 cm long by ca. 4 mm wide, linear, obtuse, coriaceous, mostly ecarinate, spreading to erect, glabrous without and within; PETALS ca. 5.0 cm long, lobes ca. 7 mm wide, yellow when alive, stamens and stigma included equally by ca. 5 mm.

TYPE in the Field Museum of Natural History, Acosta Solis 6219 (F, TYPE), collected near Osoloma, road to Tablas, Prov. Bolivar, 2500 m, 7 Oct. 1943.

NOTES: Guzmania ecuadorensis differs from G. amplexenti L. B. Smith in the sepals which greatly exceed the floral bracts and in the well-developed tripinnate inflorescence, as well as having sepals which are to 4.0 cm long and largely ecarinate. It differs from G. xanthobracteata Gilmartin in the tripinnate inflorescence and also the size of the sepals.

AECHMEA ANDRADEI Gilmartin, spec. nov.

A Aechmea abbreviata L. B. Smith, cui affinis, foliorum laminis brevioribus, marginibus armatioribus; bracteis florigeris amplioribus differt.

PLANT 30-50 cm tall; LEAVES 15-35 cm long, blades ca. 5.0 cm wide, margins serrate, spines ca. 4 mm long, sheaths ca. 7.0 cm long by 5.0 cm wide, densely lepidote below; SCAPE ca. 1 mm in diameter, curving, exceeding leaf-rosette; SCAPE-BRACTS ca. 2.8 cm long, erect, not imbricate, entire; INFLORESCENCE ca. 4.0 cm long by 3.0 cm in diameter, bipinnate, having ca. 4 spikes, lax, axis flocculose; PRIMARY BRACTS to 3.5 cm long, red, margins entire; SPIKES ca. 1.4 cm long with 2 to 3 flowers, spreading; FLORAL BRACTS ca. 7 mm long, broadly ovate, distichous, entire, green toward base, red toward apex, lepidote; SEPALS 5.5 mm long, asymmetric, nerved, yellow; PETALS ca. 5 mm long, yellow when alive, bearing fimbriate basal scales; OVARY ca. 5 mm long, distance between flowers 5-6 mm.

TYPE in the U.S. National Herbarium, AJG 870 (US), collected ca. 125 km west of Santo Domingo, road to Exmeraldas, terrestrial, Prov. Esmeraldas, ca. 0° 30' north, 79° 27' west, ca. 50 m, 11 Oct. 1963.

NOTES: Aechmea andradei bears some resemblance to Aechmea abbreviata L. B. Smith. However the size and configuration of the floral bracts as well as the much shorter and broader leaves, and the greater degree of spineyness of the leaf-blades distinguish it. It superficially resembles Aechmea angustifolia Poeppig and Endlicher. However, the much smaller size of the plant, shorter and bipinnate inflorescence, and the longer floral bracts, are some of the characters which help to distinguish it from this latter species.

GUZMANIA ELONGATA Mez and Sodiro, 1905 (Bull. Herb. Boiss., series 2, vol. 5) p. 115; Smith 1932, p. 31; Diels 1938, p. 143. Guzmania drewii L. B. Smith, 1954 (Contrb. U.S. Nat. Herb. vol. 29, no. 11) pp. 526-527, fig. 82.

NOTES: Comparison of the type specimen photograph of G. elongata, Sodiro 171/44 (B., TYPE; US, photo) with the type specimen of G. drewii L. B. Smith, Drew E-198 (US), does not uphold any distinction between these two taxa; therefore, the latter described, G. drewii is being reduced here to taxonomic synonymy in G. elongata.